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Sumatriptan in excessive doses over 15 years in a patient with chronic cluster headache

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Key Words: Sumatriptan; Chronic Cluster Headache; Side Effects; Overdosage

Abbreviations:

Cluster headache (CH); subcutaneously (s.c.)

Abstract:

We report on a 49-year old lady with cluster headache, receiving sumatriptan s.c. treatment for 15 years with daily dosages between 12 mg and 222 mg (average of 150mg during the last year). Therapy is still successful in aborting CH attacks. Long-term overdosage of sumatriptan was well tolerated, without adverse events.

Introduction:

Cluster headache (CH) is a primary headache disorder and is characterized by severe unilateral, short-lasting head pain accompanied with autonomic dysfunction. CH is classified into the two subtypes, episodic and chronic CH. There is evidence for the treatment of CH with oxygen inhalation, injectable sumatriptan,¹ intranasal zolmitriptan,² intranasal lignocaine and intranasal dihydroergotamine.

Sumatriptan is a 5-HT_{1B/1D} agonist that has been shown to decrease neural activity of the trigeminal nucleus in animal models and acts on receptors present in the cranial and basilar arteries, leading to vasoconstriction of large cerebral vessels.³ The recommended daily maximum dosage for oral application is 200 mg, for sc injections 12 mg, for nasal spray 40 mg and for suppository application 50 mg. Generally sumatriptan treatment is well tolerated. Common side effects include so called “triptan symptoms”, which include paresthesias, chest tightness, fatigue and dizziness. Rare, but serious adverse reactions in patients with vascular risk factors and/or a history of vascular events have been cardiac events, including some which have been fatal (e.g. coronary artery vasospasm, myocardial infarction), or hypertensive crises.⁴ Very rarely, sumatriptan use might lead to sulfhemoglobinemia.⁵

Case Report

A 49-years old woman presented with an 18-years history of cluster headache (ICHD-II: 3.1.2). She was free of any other disorders, in particular cardio- or cerebrovascular disorders and free of any medication. Initially, headaches were episodic with chronification over months. There was no history of other headaches. No trigger for headache could be identified.

The patient described strictly one-sided (mostly right-sided), episodes of burning, pain of maximal intensity, localized retro-, and periorbitally and at the forehead. Duration of each attack was between 30 and 120 minutes and accompanied by lacrimation, rhinorrhoea, conjunctival injection and sometimes ipsilateral miosis. No aura symptoms were reported.

Repeated clinical neurological examination, brain MRI, EEG and laboratory findings were normal. Diagnosis of a cluster headache was made in 1993; initially she was treated with NSAIDs by her general practitioner, later with oxygen by a neurologist. These therapies were only partially successful, with inconsistent efficacy. In particular, there was no response to indomethacine therapy.

From 1996 attacks occurred daily in a frequency of up to 40 attacks per day. Since 1996 sumatriptan treatment (subcutaneously [s.c.]) was initiated. From the beginning of the therapy sumatriptan was working successfully in aborting attacks after 5 to 30 minutes. CH attack frequency remained stable between 3 and 40 (mean about 20) over the years. Withdrawal of sumatriptan, which was performed twice, did not change the characteristics of the attacks. Several prophylactic attempts were unsuccessful; the criteria for intractable cluster headache are fulfilled.⁶ Due to the high number of attacks, the use of sumatriptan injections was between 2 (=12mg) and 37 (=222mg) per day. In the interval between CH attacks, she was free of any headache.

No side effects of therapy were reported, no severe adverse events occurred. Repeated clinical and laboratory examinations and ECGs showed normal results. For fifteen years sumatriptan treatment still is effective in aborting CH attacks.

Conclusions

To our best knowledge this is the first report on a documented long-term excessive triptan overdose usage for 15 years. Although criteria for cluster headache are fulfilled⁷, the high frequency of attacks in our patient is an atypical feature for CH and suggestive of chronic paroxysmal headache (CPH). In some cases, CPH could have been successfully treated with sumatriptan, too.⁸ Data on long-term use (over 12 months) and overuse of sumatriptan in cluster headache are lacking. In a study by Goebel et al.,⁹ no decline in efficacy occurred during one year of conventional treatment. Adverse events were reported by 2/3 of the patients, but were overall of minor character. In a study with thirteen sumatriptan overuse CH patients, Centonze et al.¹⁰ found a low incidence of adverse events or development of tolerance. In a population-based study¹¹ a minority of heavy sumatriptan users (with more than two defined daily dosages of sumatriptan (=12 mg s.c.) for the treatment of acute migraine were found. Rebound headaches or an incorrect use as migraine prophylaxis were suggested as cause of the overuse.

Our patient did not develop any transformation of her headaches, which is in line with the published literature.¹²

Our case is compatible with above findings of a low development of tolerance over time in CH patients and indicates good tolerability and safety even in dosages well over the recommended daily maximum.

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